

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Please cancel claims 40, 42, 43, and 45-47 without prejudice, add new claims 48-51, and amend claims 16, 17, 21-25, 29-36, 38, 39, 41, and 44 as follows:

Claims 1-15 (canceled).

16. (currently amended) A method for isolating at least one blood clotting protein from a mixture containing the at least one blood clotting protein and at least one contaminant, the method comprising the steps of:

- (a) directing a first fluid stream having a selected pH and including the mixture containing at least one blood clotting protein and the at least one contaminant, so as to flow along a first selective membrane, wherein ~~such~~ the pH is selected such that the pH is greater than the isoelectric point of the at least one blood clotting protein;
- (b) directing a second fluid stream along the first selective membrane so as to be isolated from the first fluid stream thereby;
- (c) applying at least one selected electric potential across at least the first and second fluid streams, wherein the application of the at least one selected electric potential causes migration of at least a portion of a selected one of the at least one blood clotting protein and the at least one contaminant through the first selective membrane while at least a portion of the other of the at least one blood clotting protein and the at least one contaminant is prevented from entering the second fluid stream; ~~and~~
- (d) maintaining step (c) until at least one of the fluid streams contains the

desired purity of the at least one blood clotting protein; and

(e) recovering a solution of the at least one blood clotting protein from at least one of the first and second fluid streams.

17. (currently amended) The method according to claim 16 wherein the at least one isolated blood clotting protein isolated from the recovered solution of step (e) substantially mimics the characteristics of natural blood clotting proteins.

18. (previously presented) The method according to claim 16 wherein the mixture is comprised of plasma obtained from human blood and the at least one blood clotting protein is fibrinogen.

19. (previously presented) The method according to claim 16 wherein the first selective membrane has a molecular mass cut-off close to the apparent molecular mass of the blood clotting protein.

20. (previously presented) The method according to claim 16 wherein the pH of the first fluid stream is about 7.0.

21. (currently amended) The method according to claim 16 wherein the method further comprises at least one step of periodically stopping the at least one electric potential and reversing the at least one selected electric potential to cause movement of at least any components in the first fluid stream having entered the first selective membrane to move back

into the first fluid stream and wherein substantially not causing any components which have entered the second fluid stream to re-enter the first fluid stream.

22. (currently amended) The method according to claim 16 wherein the yield of the at least one blood clotting protein isolated from the recovered solution of step (e) is at least about 70%.

23. (currently amended) The method according to claim 18 wherein the fibrinogen isolated from the recovered solution of step (e) has at least about 95% clottability.

24. (currently amended) The method according to claim 16 wherein the method further comprises:

(e) ~~recovering the at least one blood clotting protein isolated from the mixture from at least one of the first and second fluid streams;~~

(f) providing the at least one blood clotting protein recovered in step (e) into a third fluid stream and directing the third fluid stream so as to flow along a second selective membrane, wherein the third fluid stream is selected from the group consisting of the first fluid stream and a fluid stream different from the first fluid stream;

(g) directing a fourth fluid stream along the second selective membrane so as to be isolated from the third fluid stream thereby, wherein the fourth fluid stream is selected from the group consisting of the second fluid stream and a fluid stream different from the second fluid stream;

(h) applying at least one selected electric potential across at least the third

and fourth fluid streams, wherein the application of the at least one selected electric potential causes migration of at least a portion of a selected one of the at least one blood clotting protein and other components in the third fluid stream through the second selective membrane while at least a portion of the other of the at least one blood clotting protein and other components in the third fluid stream is prevented from entering the fourth fluid stream;
and

(i) maintaining step (h) until at least one of the fluid streams contains the desired purity of the at least one blood clotting protein; and

(j) recovering a solution of the at least one blood clotting protein from at least one of the third and fourth fluid streams.

25. (currently amended) The method according to claim 24 wherein the at least one ~~isolated~~ blood clotting protein isolated from the recovered solution of step (j) substantially mimics the characteristics of natural blood clotting proteins.

26. (previously presented) The method according to claim 24 wherein the mixture is comprised of plasma obtained from human blood and the at least one blood clotting protein is fibrinogen.

27. (previously presented) The method according to claim 24 wherein the second selective membrane has a larger molecular mass cut-off than the first selective membrane.

28. (previously presented) The method according to claim 24 wherein the pH of the third

fluid stream is about 7.0.

29. (currently amended) The method according to claim 24 wherein the yield of the at least one blood clotting protein isolated from the recovered solution of step (j) is at least about 70%.

30. (currently amended) The method according to claim 26 wherein the fibrinogen isolated from the recovered solution of step (j) has at least about 95% clottability.

31. (currently amended) The method according to claim 24 wherein the method further comprises at least one step of periodically stopping the at least one electric potential and reversing the at least one selected electric potential to cause movement of at least any components in the third fluid stream having entered the second selective membrane to move back into the third fluid stream and wherein substantially not causing any components which have entered the fourth fluid stream to re-enter the third fluid stream.

32. (currently amended) A method for isolating at least one blood clotting protein from a mixture containing the at least one blood clotting protein and at least one contaminant, the method comprising the steps of:

(a) communicating a first fluid volume along a first selective membrane having a characteristic pore size, wherein the first fluid volume includes the mixture containing at least one blood clotting protein and the at least one contaminant, wherein the at least one blood clotting protein and at least one contaminant each have a characteristic size

and charge;

(b) communicating a second fluid volume along the first selective membrane so as to be isolated from the first fluid volume thereby;

(c) applying at least one selected electric potential across at least the first and second fluid volumes, wherein the application of the at least one selected electric potential and the characteristic pore size of the first selective membrane causes migration of at least a portion of a selected one of the at least one blood clotting protein and the at least one contaminant through the first selective membrane while at least a portion of the other of the at least one blood clotting protein and the at least one contaminant is prevented from entering the second fluid volume;

(d) maintaining step (c) for a predetermined period; and

(e) recovering from at least one of the fluid volumes a solution of a blood clotting protein; and

(f) isolating blood clotting protein from the solution of a blood clotting protein recovered in step (e).

33. (currently amended) The method according to claim 32 wherein at least about 40% of the blood clotting protein ~~is recovered from~~ of the mixture is isolated in step (f).

34. (currently amended) The method according to claim 32 wherein in a clotting test the blood clotting protein ~~recovered~~ isolated in step (f) produces fibrins in a clot having a mass to length ration similar to that obtained with plasma in a similar clotting test.

35. (currently amended) The method according to claim 32 wherein in a clotting test the blood clotting protein ~~recovered~~ isolated in step (f) produces a clot having a fibrin network compaction similar to that obtained with plasma is a similar clotting test.

36. (currently amended) The method according to claim 32 wherein the blood clotting protein ~~recovered~~ isolated in step (f) has a purity of at least about 90%.

37. (previously presented) The method according to claim 32 wherein the mixture is comprised of plasma obtained from human blood and the at least one blood clotting protein is fibrinogen.

38. (currently amended) The method according to claim 32 wherein the method further comprises at least one step of periodically stopping the at least one electric potential and reversing the at least one selected electric potential to cause movement of at least any components in the first fluid volume having entered the first selective membrane to move back into the first fluid volume and wherein substantially not causing any components which have entered the second fluid volume to re-enter the first fluid volume.

39. (currently amended) A system for isolating at least one blood clotting protein from a mixture containing the at least one blood clotting protein and at least one contaminant, the system comprising:

means adapted for directing a first fluid stream having a selected pH and including the mixture containing at least one blood clotting protein and the at least one

contaminant, so as to flow along a first selective membrane, wherein such pH is selected such that the pH is greater than the isoelectric point of the at least one blood clotting protein;

means adapted for directing a second fluid stream along the first selective membrane so as to be isolated from the first fluid stream thereby; and

means adapted for applying at least one selected electric potential across at least the first and second fluid streams, wherein the application of the at least one selected electric potential causes migration of ~~at least a portion of a selected one of the at least one~~ blood clotting protein ~~and the at least one contaminant~~ substantially through the first selective membrane while ~~at least a portion of the other of the at least one blood clotting protein and~~ the at least one contaminant is substantially prevented from entering the second fluid stream.

40. (canceled).

41. (currently amended) The system according to claim 39 wherein the system further comprises:

means adapted for recovering the at least one blood clotting protein isolated from the mixture from at least one of the first and second fluid streams;

means adapted for providing the at least one blood clotting protein recovered from at least one of the first and second streams into a third fluid stream and directing the third fluid stream so as to flow along a second selective membrane, wherein the third fluid stream is selected from the group consisting of the first fluid stream and a fluid stream different from the first fluid stream;

means adapted for directing a fourth fluid stream along the second selective

membrane so as to be isolated from the third fluid stream thereby, wherein the fourth fluid stream is selected from the group consisting of the second fluid stream and a fluid stream different from the second fluid stream; and

means adapted for applying at least one selected electric potential across at least the third and fourth fluid streams, wherein the application of the at least one selected electric potential causes migration of at least a portion of a selected one of the at least one blood clotting protein and other components in the third fluid stream through the second selective membrane while at least a portion of the other of the at least one blood clotting protein and other components in the third fluid stream is prevented from entering the fourth fluid stream.

Claims 42-43 (canceled).

44. (currently amended) Isolated fibrinogen substantially mimicking the characteristics of natural fibrinogen, purified according to the method of claim 16.

Claims 45-47 (canceled).

48. (new) The method of claim 16, wherein the mixture is blood plasma, the at least one blood clotting protein is fibrinogen, the first fluid stream has a pH of about 7.0, the first selected membrane has a molecular mass cut off of about 300 kDa, whereby the fibrinogen substantially migrates through the first selected membrane into the second fluid stream.

49. (new) The method of claim 24, wherein the mixture is blood plasma, the at least one blood clotting protein is fibrinogen, the first selective membrane has a molecular mass cut off of about 300 kDa, whereby the fibrinogen substantially migrates through the first selected membrane into the second fluid stream, and the second selective membrane has a molecular mass cut off of about 1000 kDa.

50. (new) The method of claim 32, wherein the mixture is blood plasma, the at least one blood clotting protein is fibrinogen, the first selective membrane has a molecular mass cut off of about 300 kDa, whereby the fibrinogen substantially migrates through the first selected membrane into the second fluid stream, and the yield of isolated fibrinogen is at least about 70%.

51. (new) Isolated fibrinogen prepared by the method of claim 48.